

What is claimed is:

1. An optical add/drop multiplexing apparatus comprising:
a photonic switching fabric operably coupled to drop but not add
5 optical data streams; and
a combiner operably coupled to combine passed optical data streams
from the photonic switching fabric together with added optical data streams.
2. The optical add/drop multiplexing apparatus of claim 1, wherein the
10 photonic switching fabric comprises single-sided mirrors configurable to drop
but not add optical data streams.
3. The optical add/drop multiplexing apparatus of claim 1, wherein the
added optical data streams are not limited to the wavelengths of the dropped
15 optical data streams.
4. The optical add/drop multiplexing apparatus of claim 1, wherein the
combiner is a passive coupler.
- 20 5. The optical add/drop multiplexing apparatus of claim 1, wherein the
combiner comprises filter logic for blocking an out-of-band optical data
stream.
6. The optical add/drop multiplexing apparatus of claim 1, further
25 comprising a demultiplexer operably coupled to demultiplex optical data
streams from an incoming fiber and provide the demultiplexed optical data
streams as inputs to the photonic switching fabric.
7. The optical add/drop multiplexing apparatus of claim 1, wherein the
30 photonic switching fabric is operably coupled to output the dropped optical
data streams separately from the passed optical data streams.

8. An optical add/drop multiplexing system comprising:
a photonic switching fabric operably coupled to drop but not add
optical data streams; and

a combiner operably coupled to combine passed optical data streams
5 from the photonic switching fabric together with added optical data streams.

9. The optical add/drop multiplexing system of claim 8, wherein the
photonic switching fabric comprises single-sided mirrors configurable to drop
but not add optical data streams.

10 10. The optical add/drop multiplexing system of claim 8, wherein the
added optical data streams are not limited to the wavelengths of the dropped
optical data streams.

11 11. The optical add/drop multiplexing system of claim 8, wherein the
combiner is a passive coupler.

12. The optical add/drop multiplexing system of claim 8, wherein the
combiner comprises filter logic for blocking an out-of-band optical data
20 stream.

13. The optical add/drop multiplexing system of claim 8, further
comprising a demultiplexer operably coupled to demultiplex optical data
streams from an incoming fiber and provide the demultiplexed optical data
25 streams as inputs to the photonic switching fabric.

14. The optical add/drop multiplexing system of claim 8, wherein the
photonic switching fabric is operably coupled to output the dropped optical
data streams separately from the passed optical data streams.

15. The optical add/drop multiplexing system of claim 8, wherein each added optical data stream is maintained in-band using controls external to the combiner.

16. A Micro Electro Mechanical System (MEMS) capable of dropping but not adding optical data streams, the MEMS comprising single-sided mirrors configurable to drop but not add optical data streams.